

AMENDMENTS TO THE CLAIMS

1. (Withdrawn) A protein having the amino acid sequence of SEQ ID NO: 2 or the amino acid sequence of SEQ ID NO: 2 including substitution, deletion, insertion, addition or inversion of one or several amino acids residues, which has isocitrate lyase activity and shows 30% or more of residual activity after a heat treatment at 50°C for 5 minutes.
2. (Withdrawn) A protein having the amino acid sequence of SEQ ID NO: 4 or the amino acid sequence of SEQ ID NO: 4 including substitution, deletion, insertion, addition or inversion of one or several amino acids residues, which is involved in acyl Co-A carboxylase activity and is derived from *Corynebacterium thermoaminogenes*.
3. (Withdrawn) A protein having the amino acid sequence of SEQ ID NO: 6 or the amino acid sequence of SEQ ID NO: 6 including substitution, deletion, insertion, addition or inversion of one or several amino acids residues, which has DtsR activity and is derived from *Corynebacterium thermoaminogenes*.
4. (Withdrawn) A protein having the amino acid sequence of SEQ ID NO: 8 or the amino acid sequence of SEQ ID NO: 8 including substitution, deletion, insertion, addition or inversion of one or several amino acids residues, which has DtsR activity and is derived from *Corynebacterium thermoaminogenes*.
5. (Withdrawn) A protein having the amino acid sequence of SEQ ID NO: 10 or the amino acid sequence of SEQ ID NO: 10 including substitution, deletion, insertion, addition or inversion of one or several amino acids residues, which shows phosphofructokinase activity

at 60°C in an equivalent or higher degree compared with the activity at 30°C.

6. (Withdrawn) A protein having the amino acid sequence of SEQ ID NO: 94 or the amino acid sequence of SEQ ID NO: 94 including substitution, deletion, insertion, addition or inversion of one or several amino acids residues, which has activity for imparting sucrose assimilating ability to *Corynebacterium thermoaminogenes*.

7. (Withdrawn) A protein having any one of the amino acid sequences of SEQ ID NOS: 17-20 or the amino acid sequence of any one of SEQ ID NOS: 17-20 including substitution, deletion, insertion, addition or inversion of one or several amino acids residues, which has a function involved in glutamic acid uptake and is derived from *Corynebacterium thermoaminogenes*.

8. (Withdrawn) A protein having the amino acid sequence of SEQ ID NO: 22 or the amino acid sequence of SEQ ID NO: 22 including substitution, deletion, insertion, addition or inversion of one or several amino acids residues, which has pyruvate dehydrogenase activity and is derived from *Corynebacterium thermoaminogenes*.

9. (Withdrawn) A protein having the amino acid sequence of SEQ ID NO: 24 or the amino acid sequence of SEQ ID NO: 24 including substitution, deletion, insertion, addition or inversion of one or several amino acids residues, which has pyruvate carboxylase activity and is derived from *Corynebacterium thermoaminogenes*.

10. (Withdrawn) A protein having the amino acid sequence of SEQ ID NO: 26 or the

amino acid sequence of SEQ ID NO: 26 including substitution, deletion, insertion, addition or inversion of one or several amino acids residues, which has phosphoenolpyruvate carboxylase activity and shows 50% or more of residual activity after a heat treatment at 45°C for 5 minutes.

11. (Withdrawn) A protein having the amino acid sequence of SEQ ID NO: 28 or the amino acid sequence of SEQ ID NO: 28 including substitution, deletion, insertion, addition or inversion of one or several amino acids residues, which has aconitase activity and shows 30% or more of residual activity after a heat treatment at 50°C for 3 minutes.

12. (Withdrawn) A protein having the amino acid sequence of SEQ ID NO: 30 or the amino acid sequence of SEQ ID NO: 30 including substitution, deletion, insertion, addition or inversion of one or several amino acids residues, which has isocitrate dehydrogenase activity and shows 50% or more of residual activity after a heat treatment at 45°C for 10 minutes.

13. (Withdrawn) A protein having the amino acid sequence of SEQ ID NO: 32 or the amino acid sequence of SEQ ID NO: 32 including substitution, deletion, insertion, addition or inversion of one or several amino acids residues, which has dihydrolipoamide dehydrogenase activity and is derived from *Corynebacterium thermoaminogenes*.

14. (Withdrawn) A protein having the amino acid sequence of SEQ ID NO: 34 or the amino acid sequence of SEQ ID NO: 34 including substitution, deletion, insertion, addition or inversion of one or several amino acids residues, which has 2-oxoglutarate dehydrogenase activity and shows 30% or more of residual activity after a heat treatment at 50°C for 10

minutes.

15. (Withdrawn) A protein having the amino acid sequence of SEQ ID NO: 80 in Sequence Listing or the amino acid sequence of SEQ ID NO: 80 including substitution, deletion, insertion, addition or inversion of one or several amino acids residues, which shows glutamate dehydrogenase activity at 42°C in an equivalent or higher degree compared with the activity at 37°C.

16. (Withdrawn) A protein having the amino acid sequence of SEQ ID NO: 90 in Sequence Listing or the amino acid sequence of SEQ ID NO: 90 including substitution, deletion, insertion, addition or inversion of one or several amino acids residues, which shows citrate synthase activity at 37°C in an equivalent or higher degree compared with the activity at 23°C.

17. (Withdrawn) A DNA which codes for a protein having the amino acid sequence of SEQ ID NO: 2 or the amino acid sequence of SEQ ID NO: 2 including substitution, deletion, insertion, addition or inversion of one or several amino acids residues, and having isocitrate lyase activity.

18. (Withdrawn) The DNA according to Claim 17, which is a DNA defined in the following (a1) or (b1):

(a1) a DNA which comprises the nucleotide sequence of SEQ ID NO: 1 in Sequence Listing,

(b1) a DNA which is hybridizable with the nucleotide sequence of SEQ ID NO: 1 in

Sequence Listing or a primer prepared based on the nucleotide sequence under a stringent condition, and codes for a protein having isocitrate lyase activity.

19. (Withdrawn) A DNA which codes for a protein having the amino acid sequence of SEQ ID NO: 4 or the amino acid sequence of SEQ ID NO: 4 including substitution, deletion, insertion, addition or inversion of one or several amino acids residues, and involved in acyl Co-A carboxylase activity.

20. (Withdrawn) The DNA according to Claim 19, which is a DNA defined in the following (a2) or (b2):

(a2) a DNA which comprises the nucleotide sequence of SEQ ID NO: 3 in Sequence Listing,

(b2) a DNA which is hybridizable with the nucleotide sequence of SEQ ID NO: 3 in Sequence Listing or a primer prepared based on the nucleotide sequence under a stringent condition, and codes for a protein involved in acyl Co-A carboxylase activity.

21. (Withdrawn) A DNA which codes for a protein having the amino acid sequence of SEQ ID NO: 6 or the amino acid sequence of SEQ ID NO: 6 including substitution, deletion, insertion, addition or inversion of one or several amino acids residues, and having DtsR activity.

22. (Withdrawn) The DNA according to Claim 21, which is a DNA defined in the following (a3) or (b3):

(a3) a DNA which comprises the nucleotide sequence of SEQ ID NO: 5 in Sequence

Listing,

(b3) a DNA which is hybridizable with the nucleotide sequence of SEQ ID NO: 5 in Sequence Listing or a primer prepared based on the nucleotide sequence under a stringent condition, and codes for a protein having DtsR activity.

23. (Withdrawn) A DNA which codes for a protein having the amino acid sequence of SEQ ID NO: 8 or the amino acid sequence of SEQ ID NO: 8 including substitution, deletion, insertion, addition or inversion of one or several amino acids residues, and having DtsR activity.

24. (Withdrawn) The DNA according to Claim 23, which is a DNA defined in the following (a4) or (b4):

(a4) a DNA which comprises the nucleotide sequence of SEQ ID NO: 7 in Sequence Listing,

(b4) a DNA which is hybridizable with the nucleotide sequence of SEQ ID NO: 7 in Sequence Listing or a primer prepared based on the nucleotide sequence under a stringent condition, and codes for a protein having DtsR activity.

25. (Withdrawn) A DNA which codes for a protein having the amino acid sequence of SEQ ID NO: 10 or the amino acid sequence of SEQ ID NO: 10 including substitution, deletion, insertion, addition or inversion of one or several amino acids residues, and having phosphofructokinase activity.

26. (Withdrawn) The DNA according to Claim 25, which is a DNA defined in the

following (a5) or (b5):

(a5) a DNA which comprises the nucleotide sequence of SEQ ID NO: 9 in Sequence Listing,

(b5) a DNA which is hybridizable with the nucleotide sequence of SEQ ID NO: 9 in Sequence Listing or a primer prepared based on the nucleotide sequence under a stringent condition, and codes for a protein having phosphofructokinase activity.

27. (Withdrawn) A DNA which codes for a protein having the amino acid sequence of SEQ ID NO: 93 or the amino acid sequence of SEQ ID NO: 93 including substitution, deletion, insertion, addition or inversion of one or several amino acids residues, and having invertase activity.

28. (Withdrawn) The DNA according to Claim 27, which is a DNA defined in the following (a6) or (b6):

(a6) a DNA which comprises the nucleotide sequence of SEQ ID NO: 93 in Sequence Listing,

(b6) a DNA which is hybridizable with the nucleotide sequence of SEQ ID NO: 93 in Sequence Listing or a primer prepared based on the nucleotide sequence under a stringent condition, and codes for a protein having invertase activity.

29. (Withdrawn) A DNA which codes for a protein having any one of the amino acid sequences of SEQ ID NOS: 17-20 or the amino acid sequence of any one of SEQ ID NOS: 17-20 including substitution, deletion, insertion, addition or inversion of one or several amino acids residues, and having a function involved in glutamic acid uptake.

30. (Withdrawn) The DNA according to Claim 29, which is a DNA defined in the following (a7) or (b7):

(a7) a DNA which comprises the nucleotide sequence of SEQ ID NO: 16 in Sequence Listing,

(b7) a DNA which is hybridizable with the nucleotide sequence of SEQ ID NO: 16 in Sequence Listing or a primer prepared based on the nucleotide sequence under a stringent condition, and codes for a protein having a function involved in glutamic acid uptake.

31. (Withdrawn) A DNA which codes for a protein having the amino acid sequence of SEQ ID NO: 22 or the amino acid sequence of SEQ ID NO: 22 including substitution, deletion, insertion, addition or inversion of one or several amino acids residues, and having pyruvate dehydrogenase activity.

32. (Withdrawn) The DNA according to Claim 31, which is a DNA defined in the following (a8) or (b8):

(a8) a DNA which comprises the nucleotide sequence of SEQ ID NO: 21 in Sequence Listing,

(b8) a DNA which is hybridizable with the nucleotide sequence of SEQ ID NO: 21 in Sequence Listing or a primer prepared based on the nucleotide sequence under a stringent condition, and codes for a protein having pyruvate dehydrogenase activity.

33. (Withdrawn) A DNA which codes for a protein having the amino acid sequence of SEQ ID NO: 24 or the amino acid sequence of SEQ ID NO: 24 including substitution,



deletion, insertion, addition or inversion of one or several amino acids residues, and having pyruvate carboxylase activity.

34. (Withdrawn) A DNA according to Claim 33, which is a DNA defined in the following (a9) or (b9):

(a9) a DNA which comprises the nucleotide sequence of SEQ ID NO: 23 in Sequence Listing,

(b9) a DNA which is hybridizable with the nucleotide sequence of SEQ ID NO: 23 in Sequence Listing or a primer prepared based on the nucleotide sequence under a stringent condition, and codes for a protein having pyruvate carboxylase activity.

35. (Withdrawn) A DNA which codes for a protein having the amino acid sequence of SEQ ID NO: 26 or the amino acid sequence of SEQ ID NO: 26 including substitution, deletion, insertion, addition or inversion of one or several amino acids residues, and having phosphoenolpyruvate carboxylase activity.

36. (Withdrawn) The DNA according to Claim 35, which is a DNA defined in the following (a10) or (b10):

(a10) a DNA which comprises the nucleotide sequence of SEQ ID NO: 25 in Sequence Listing,

(b10) a DNA which is hybridizable with the nucleotide sequence of SEQ ID NO: 25 in Sequence Listing or a primer prepared based on the nucleotide sequence under a stringent condition, and codes for a protein having phosphoenolpyruvate carboxylase activity.

37. (Withdrawn) A DNA which codes for a protein having the amino acid sequence of SEQ ID NO: 28 or the amino acid sequence of SEQ ID NO: 28 including substitution, deletion, insertion, addition or inversion of one or several amino acids residues, and having aconitase activity.

38. (Withdrawn) The DNA according to Claim 37, which is a DNA defined in the following (a11) or (b11):

(a11) a DNA which comprises the nucleotide sequence of SEQ ID NO: 27 in Sequence Listing,

(b11) a DNA which is hybridizable with the nucleotide sequence of SEQ ID NO: 27 in Sequence Listing or a primer prepared based on the nucleotide sequence under a stringent condition, and codes for a protein having aconitase activity.

39. (Withdrawn) A DNA which codes for a protein having the amino acid sequence of SEQ ID NO: 30 or the amino acid sequence of SEQ ID NO: 30 including substitution, deletion, insertion, addition or inversion of one or several amino acids residues, and having isocitrate dehydrogenase activity.

40. (Withdrawn) The DNA according to Claim 39, which is a DNA defined in the following (a12) or (b12):

(a12) a DNA which comprises the nucleotide sequence of SEQ ID NO: 27 in Sequence Listing,

(b12) a DNA which is hybridizable with the nucleotide sequence of SEQ ID NO: 27 in Sequence Listing or a primer prepared based on the nucleotide sequence under a stringent

condition, and codes for a protein having isocitrate dehydrogenase activity.

41. (Withdrawn) A DNA which codes for a protein having the amino acid sequence of SEQ ID NO: 32 or the amino acid sequence of SEQ ID NO: 32 including substitution, deletion, insertion, addition or inversion of one or several amino acids residues, and having dihydrolipoamide dehydrogenase activity.

42. (Withdrawn) The DNA according to Claim 41, which is a DNA defined in the following (a13) or (b13):

(a13) a DNA which comprises the nucleotide sequence of SEQ ID NO: 31 in Sequence Listing,

(b13) a DNA which is hybridizable with the nucleotide sequence of SEQ ID NO: 31 in Sequence Listing or a primer prepared based on the nucleotide sequence under a stringent condition, and codes for a protein having dihydrolipoamide dehydrogenase activity.

43. (Withdrawn) A DNA which codes for a protein having the amino acid sequence of SEQ ID NO: 34 or the amino acid sequence of SEQ ID NO: 34 including substitution, deletion, insertion, addition or inversion of one or several amino acids residues, and having 2-oxoglutarate dehydrogenase activity.

44. (Withdrawn) The DNA according to Claim 43, which is a DNA defined in the following (a14) or (b14):

(a14) a DNA which comprises the nucleotide sequence of SEQ ID NO: 33 in Sequence Listing,

(b14) a DNA which is hybridizable with the nucleotide sequence of SEQ ID NO: 33 in Sequence Listing or a primer prepared based on the nucleotide sequence under a stringent condition, and codes for a protein having 2-oxoglutarate dehydrogenase activity.

45. (Currently Amended) A DNA which codes for a protein having the amino acid sequence of SEQ ID NO: 80 ~~in Sequence Listing or the amino acid sequence of SEQ ID NO: 80 including substitution, deletion, insertion, addition or inversion of one or several amino acids residues, and showing glutamate dehydrogenase activity at 42°C in an equivalent or higher degree compared with the activity at 37°C.~~

46. (Currently Amended) ~~The DNA according to Claim 45, which is a DNA defined in the following (a15) or (b15):~~

~~(a15) a DNA which comprises~~ An isolated DNA which comprises the nucleotide sequence of SEQ ID NO: 79 ~~in Sequence Listing;~~

~~(b15) a DNA which is hybridizable with the nucleotide sequence of SEQ ID NO: 79 in Sequence Listing or a primer prepared based on the nucleotide sequence under a stringent condition, and codes for a protein showing glutamate dehydrogenase activity at 42°C in an equivalent or higher degree compared with the activity at 37°C.~~

47. (Withdrawn) A DNA which codes for a protein having the amino acid sequence of SEQ ID NO: 90 in Sequence Listing or the amino acid sequence of SEQ ID NO: 90 including substitution, deletion, insertion, addition or inversion of one or several amino acids residues, and showing citrate synthase activity at 37°C in an equivalent or higher degree compared with the activity at 23°C.

48. (Withdrawn) The DNA according to Claims 47, which is a DNA defined in the following (a16) or (b16):

(a16) a DNA which comprises the nucleotide sequence of SEQ ID NO: 89 in Sequence Listing,

(b16) a DNA which is hybridizable with the nucleotide sequence of SEQ ID NO: 89 in Sequence Listing or a primer prepared based on the nucleotide sequence under a stringent condition, and codes for a protein showing citrate synthase activity at 37°C in an equivalent or higher degree compared with the activity at 23°C.

49. (Canceled)

50. (New) An isolated DNA which codes for a protein having the amino acid sequence of SEQ ID NO: 80 including substitution, deletion, insertion, addition or inversion of 1-10 amino acid residues, and showing glutamate dehydrogenase activity at 42°C in an equivalent or higher degree compared with the activity at 37°C.

51. (New) An isolated DNA which is hybridizable with the nucleotide sequence of SEQ ID NO: 79 under a stringent condition, and codes for a protein showing glutamate dehydrogenase activity at 42°C in an equivalent or higher degree compared with the activity at 37°C, and having homology of 90% or more to SEQ ID NO. 80, wherein the stringent condition is 60°C, 1 x SSC and 0.1% SDS.

52. (New) A method for producing L-amino acid, which comprises culturing a microorganism introduced with a DNA according to Claim 45 in a medium to produce and accumulate L-amino acid in the medium, and collecting the L-amino acid from the medium.

53. (New) A method for producing L-amino acid, which comprises culturing a microorganism introduced with a DNA according to Claim 46 in a medium to produce and accumulate L-amino acid in the medium, and collecting the L-amino acid from the medium.

54. (New) A method for producing L-amino acid, which comprises culturing a microorganism introduced with a DNA according to Claim 50 in a medium to produce and accumulate L-amino acid in the medium, and collecting the L-amino acid from the medium.

55. (New) A method for producing L-amino acid, which comprises culturing a microorganism introduced with a DNA according to Claim 51 in a medium to produce and accumulate L-amino acid in the medium, and collecting the L-amino acid from the medium.

56. (New) The method according to Claim 52, wherein the L-amino acid is L-glutamic acid.

57. (New) The method according to Claim 53, wherein the L-amino acid is L-glutamic acid.

58. (New) The method according to Claim 54, wherein the L-amino acid is L-glutamic acid.

59. (New) The method according to Claim 55, wherein the L-amino acid is L-glutamic acid.

SUPPORT FOR THE AMENDMENTS

Claim 49 has been canceled.

Claims 45 and 46 have been amended.

Claims 50-59 have been added.

Support for the amendment of Claims 45 and 46 can be found in the corresponding claims as originally filed. New Claims 50-59 are supported by original Claims 45, 46, and 49, as well as the originally filed specification, for example at page 25, lines 5-9 and page 27, lines 15-20.

Applicants submit herewith a corrected substitute Sequence Listing. Support for the corrections to the corrected substitute Sequence Listing is provided by the originally filed Sequence Listing.

No new matter has been added by the present amendments.